

USGS National Hydrography Dataset Newsletter
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Medium Resolution (100K) News:

- The re-leveling process described in the last newsletter is now about 2/3 the way through the sub-basins. The process of reloading these into the FOD is up-to-date and running smoothly.
- Only one known sub-basin, in the Florida everglades, remains to be completed in the effort to provide complete national (except Alaska) coverage. The final stage is to convert the sub-basins to the NHD-in-Arc format, which in this case takes several days. This sub-basin is bogged down by complex flows inherent in any canal-laden marsh or swamp, but is particularly troublesome in this, the granddaddy of swamps.
- An effort to redefine the sub-basin boundaries in the Vermont area is nearing completion with most sub-basins having been re-entered into the FOD. An entirely new sub-basin, Lake Champlain, was created as a result. This necessitates sub-basin migration where reach ID's are recoded based on their location in new or different sub-basins.

High Resolution (24K) News:

Good News From Hawaii: Well, Denver that is. The eight sub-basins covering Hawaii are now in the FOD and being made distributable as this is written. The work was done at the Rocky Mountain Mapping Center and funded by the Department of Interior High Priority Lands program. The dataset will be showcased at the upcoming Hawaii GISMAP conference in May where a seminar will be presented on the NHD. The data will be used by the USGS and the State of Hawaii Aquatic Resources Division of the Department of Natural Resources. It is now possible to say that one state has complete high-resolution coverage, although many seem to be holding their breath until someone downloads and uses the data.

Progress in Kentucky: The Kentucky Office of Geographic Information is undertaking an effort to produce a statewide basemap initiative in which the NHD serves as the hydrography theme. The program began with the revision of DLG-3 hydrography data using recently completed Digital Orthophoto Quarter-Quadrangles. These updated DLG's then serve as the source for the NHD. The USGS Mid-Continent Mapping Center is producing the NHD under a Joint Funding Agreement where the state and the USGS each contribute one-half of the necessary funding. Due to funding restrictions, a number of sub-basins are being only partially completed within the state at a logical cut-off just beyond the state borders. Much of the work is now complete and is being entered into the FOD. Since this has been one of the first statewide programs, many management and technical concerns have had to be resolved. The experience has given the USGS and its partners valuable information in developing subsequent programs. The NHD will become a common geospatial framework for local, state, and federal agencies in the analysis of hydrography in the state. Also, an interesting technical challenge to hydrologic modeling involves the complicated flows influenced by the karst geography of the region, a characteristic that may not be addressed by the NHD alone.

Developments in Ohio: The USGS and the Ohio State University - Center for Mapping (CFM) are involved in an Innovative Partnership to develop high-resolution NHD for Ohio. USGS funds for this effort have been matched by funds from a consortium of state agencies through the coordination efforts of the Ohio Geographically Referenced Information Program (OGRIP).

OSU-CFM is using state funds to update the source 24K surface hydrography data prior to NHD creation using 1994 DOQ's. USGS funds are used to make high-resolution NHD data from the updated source vectors. The CFM is currently producing one sub-basin as a pilot for the partnership, which will help confirm if high-resolution NHD production will be continued for the entire state. Training and technical assistance is provided by the Mid-Continent Mapping Center and in-turn the CFM is providing valuable feedback on NHD pre-conflation, conflation, and post-conflation tools. Plans are not yet in place for the production of NHD for interstate sub-basins. A recent Ohio GIS Conference included a session on Ohio NHD sponsored by the USGS and the Water Management Association of Ohio. The need for an Ohio hydrography interest group was emphasized, along with the need for a unified or official hydrography layer for the state. The concept of data stewards and data maintenance was discussed. The 100K NHD is already being used in Ohio (e.g., for GAP), but updated high-resolution NHD will be of substantially greater value particularly when integrated with elevation data, watershed boundaries, and land cover data. The OGRIP Council will be reviewing the Ohio strategic plan for framework geodata in early February. High-resolution NHD will likely be a key topic for the new hydrography framework committee.

NHD Technology: One of the principal advantages of the NHD as a geospatial dataset is its ability to be maintained. This will help assure the longevity of the NHD as the Nation's premiere hydrography dataset. The success of maintenance is dependent on the proper tools to conduct maintenance. Currently, three sets of tools are being made available: (1) NHD Edit, based on ArcView, will soon be available to meet the needs of a broad range of users, and is largely concerned with the edit of attributes, assuring the integrity of the network. (2) NHD Create, largely based on ArcInfo, is more complex, and although designed for production, allows good spatial editing. (3) Framework Tools Interface (FTI), based on Oracle/SDE/ArcInfo, is a highly specialized, but very capable editing system. As efforts are underway to transition the NHD to Arc8 Geodatabase, it will be necessary to evaluate the need for future maintenance tools. The advanced characteristics of Geodatabase will help provide integrity to the data and simplify the model, which will help minimize some of the maintenance necessary. New capabilities in ArcGIS will accomplish some of the necessary functionality needed for maintenance. However, it will be necessary to build new tools. To do this, an effort is underway to evaluate the current suite of tools and inventory the functionality found necessary to maintain the NHD. Then these requirements will be matched against ArcGIS and Geodatabase functionality. This gap analysis will identify new developments, which must be carried out by the USGS, its partners, and vendors to fulfill the complete array of tools needed. This process will ease the transition to Geodatabase by concurrently providing maintenance tools as the migration takes place.

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